

Chapter 585 DISSOLVED OXYGEN REQUIREMENTS FOR RIVERS AND STREAMS

SUMMARY: This chapter sets forth the dissolved oxygen concentrations for rivers and streams required for the support of indigenous fish. The chapter also establishes the procedure for the designation of fish spawning areas in Class B and C waters. Finally, the chapter defines how dissolved oxygen criteria will be applied to and measured in riverine impoundments. This chapter repeals and replaces the Chapter 585 rule originally adopted in 1989.

- 1. General.** Concentrations of dissolved oxygen in fresh surface waters that are not classified as great ponds must be sufficient to support all indigenous species of fish. Support includes the critical life functions of growth, reproduction, and survival. Brook trout and other salmonid species of fish are known to be indigenous to essentially all of the State's rivers and streams.

Numeric dissolved oxygen criteria currently specified in Maine's Water Classification Program (38 M.R.S.A. §§ 464 et. seq.) are protective of short-term survival and reproduction of some species of fish in some waters. Additional numeric dissolved oxygen criteria needed to support growth, reproduction and survival of all indigenous species of fish in all riverine waters are set forth in this chapter.

- 2. Dissolved oxygen criteria for support of indigenous species of fish.** A person may not conduct an activity that, either by itself or in combination with other activities, will cause the dissolved oxygen content of Class AA, A, B, and C waters to be less than the concentrations specified in this section.

A. Class AA. Class AA waters must have dissolved oxygen content as naturally occurs.

B. Class A, B, and C. Class A, B, and C waters must have dissolved oxygen content as set forth in the following table.

**Minimum Dissolved Oxygen Concentrations of Class A, B, and C Waters
in milligrams per liter (mg/l)**

	Spawning, Egg Incubation, and Early Life Stages				Other Life Stages		
	Class A Oct 1 to May 14	Class B/C Oct 1 to May 14 Salmonid	Class B Embryo to 30 days post hatch Non-salmonid	Class C Embryo to 30 days post hatch Non-salmonid	Class A Year-round	Class B Year-round	Class C Year-round
Instantaneous minimum	8.0	8.0	7.0*	5.0**	7.0 or 75% saturation*	7.0 or 75% saturation*	5.0 or 60% saturation**
7-day mean	9.5	9.5	7.0	6.0	7.0	7.0	Not established
30-day mean	Not established	Not established	7.0	6.5	7.0	7.0	6.5

* For Class A and B waters, the minimum instantaneous dissolved oxygen content is 7.0 mg/l or 75% of saturation, whichever is higher.

** For Class C waters, the minimum instantaneous dissolved oxygen content is 5.0 mg/l or 60% of saturation, whichever is higher.

- 3. Identification of fish spawning areas.** Prior to licensing or relicensing a wastewater discharge, issuing a water quality certification, or otherwise permitting an activity that may affect the dissolved oxygen content of Class B or C waters, the department shall request that the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, and the Atlantic Salmon Commission identify any salmonid or non-salmonid fish spawning areas in the affected waters.

Fish spawning areas must be identified using one or more of the following methods, from most to least preferred.

- A. Identification by observation.** Identification of areas being utilized by fish for spawning based on visual observation by a certified fishery biologist.
- B. Identification through records.** Identification of areas utilized or suitable for use by fish for spawning based on habitat inventories, river reports, or agency files.
- C. Identification based on habitat.** Identification of areas suitable for use by fish for spawning based on research findings of spawning areas for fish in other geographical locations, from scientific literature, or from habitat suitability models for selected species of fish.
- D. Identification based on professional opinion.** Identification of areas suitable for use by fish for spawning based on the professional opinion of a certified fishery biologist. Salmonid spawning areas must be identified by a certified fishery biologist experienced in salmonid ecology.
- 4. Designation of salmonid spawning areas.** Following consultation with the affected applicant(s) or licensee(s), and after opportunity for public comment in accordance with application processing rules, any identified salmonid spawning areas must be designated as salmonid spawning areas by the department and the higher levels of dissolved oxygen set forth in section 2 of this chapter for salmonid spawning, egg incubation and early life stages must be achieved and maintained.
- 5. Applicability of dissolved oxygen criteria to riverine impoundments.** The dissolved oxygen criteria set forth in section 2 of this chapter apply to all riverine impoundments that are classified as Class AA, A, B, or C waters and to new riverine impoundments that are classified as Class GPA waters. Existing riverine impoundments that are classified as Class GPA waters are not subject to the dissolved oxygen criteria set forth in this chapter.

For purposes of this chapter, “existing riverine impoundments” means all impoundments of rivers and streams in existence as of January 1, 2001.

- 6. Measurement of dissolved oxygen in riverine impoundments.** Because sediment may interfere with dissolved oxygen measurements near the bottom of an impoundment, and because mixing may be inhibited due to thermal stratification or natural topographic features, resulting in low dissolved oxygen levels in the lower levels of an impoundment, compliance

with dissolved oxygen criteria in existing riverine impoundments will be measured as follows.

- A. Bottom waters.** Compliance with dissolved oxygen criteria will not be measured within 0.5 meters of the bottom of existing riverine impoundments.
- B. Thermal stratification.** Where mixing is inhibited due to thermal stratification in an existing riverine impoundment, compliance with dissolved oxygen criteria will not be measured within that portion of the impoundment below the point of thermal stratification during the time stratification conditions occur as defined below, except where such stratification is caused in whole or in part by the operation of a dam.

For purposes of this chapter, “thermal stratification” means a change of temperature of at least one degree Celsius per meter of depth, causing water below this point in an impoundment to become isolated and not mix with water above this point in an impoundment.

- C. Natural topographic features.** Where mixing is inhibited due to natural topographic features in an existing riverine impoundment, compliance with dissolved oxygen criteria will not be measured within that portion of the impoundment that is topographically isolated. Such natural topographic features may include, but not be limited to, natural deep holes or river bottom sills.

Notwithstanding the provisions of this section, dissolved oxygen concentrations in existing riverine impoundments must be sufficient to support existing and designated uses of these waters.

AUTHORITY: 38 M.R.S.A. § 341-D and § 465

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REPEALED AND REPLACED: